

Troponinindikatoren PCT.ST25  
SEQUENCE LISTING

<110> Max-Planck-Gesellschaft

<120> Novel genetically encoded bioindicators of calcium-ions

<130> G62276PC

<150> EP 03016691.2

<151> 2003-08-04

<160> 42

<170> PatentIn version 3.1

<210> 1

<211> 1863

<212> DNA

<213> Artificial Sequence

<220>

<223> Calcium binding moiety: cSTnC 15-163

<400> 1

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cagcacgact tcttcaagtc cgccatgccc gaaggctacg tccaggagcg taccatcttc	300
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gaccactacc agcagaacac ccccatcggc gacggccccg tgctgctgcc cgacaaccac	600
tacctgagca ccagtcgcg cctgagcaaa gaccccaacg agaagcgcg tcacatggtc	660
ctgctggagt tcgtgaccgc cgcccgcatg ctcagcgagg agatgattgc tgagttcaaa	720

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 taa 1863

&lt;210&gt; 2

&lt;211&gt; 620

&lt;212&gt; PRT

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; Calcium binding moiety: csTnC 15-163

&lt;400&gt; 2

Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu  
 1 5 10 15

Val Glu Leu Asp Gly Asp Val Asn Gly His Arg Phe Ser Val Ser Gly  
 20 25 30

Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile  
 35 40 45

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Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr  
 50 55 60  
 Leu Thr Trp Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys  
 65 70 75 80  
 Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu  
 85 90 95  
 Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu  
 100 105 110  
 Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly  
 115 120 125  
 Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr  
 130 135 140  
 Asn Tyr Ile Ser His Asn Val Tyr Ile Thr Ala Asp Lys Gln Lys Asn  
 145 150 155 160  
 Gly Ile Lys Ala His Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser  
 165 170 175  
 Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly  
 180 185 190  
 Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu  
 195 200 205  
 Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe  
 210 215 220  
 Val Thr Ala Ala Arg Met Leu Ser Glu Glu Met Ile Ala Glu Phe Lys  
 225 230 235 240  
 Ala Ala Phe Asp Met Phe Asp Ala Asp Gly Gly Gly Asp Ile Ser Thr  
 245 250 255  
 Lys Glu Leu Gly Thr Val Met Arg Met Leu Gly Gln Asn Pro Thr Lys  
 260 265 270  
 Glu Glu Leu Asp Ala Ile Ile Glu Glu Val Asp Glu Asp Gly Ser Gly  
 275 280 285  
 Thr Ile Asp Phe Glu Glu Phe Leu Val Met Met Val Arg Gln Met Lys  
 290 295 300  
 Glu Asp Ala Lys Gly Lys Ser Glu Glu Glu Leu Ala Asn Cys Phe Arg  
 305 310 315 320

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Ile Phe Asp Lys Asn Ala Asp Gly Phe Ile Asp Ile Glu Glu Leu Gly  
 325 330 335  
 Glu Ile Leu Arg Ala Thr Gly Glu His Val Ile Glu Glu Asp Ile Glu  
 340 345 350  
 Asp Leu Met Lys Asp Ser Asp Lys Asn Asn Asp Gly Arg Ile Asp Phe  
 355 360 365  
 Asp Glu Phe Leu Lys Met Met Glu Gly Val Gln Glu Leu Met Val Ser  
 370 375 380  
 Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu  
 385 390 395 400  
 Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu  
 405 410 415  
 Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr  
 420 425 430  
 Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe Gly Tyr  
 435 440 445  
 Gly Leu Met Cys Phe Ala Arg Tyr Pro Asp His Met Arg Gln His Asp  
 450 455 460  
 Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile  
 465 470 475 480  
 Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe  
 485 490 495  
 Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe  
 500 505 510  
 Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn  
 515 520 525  
 Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile Lys  
 530 535 540  
 Ala Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu  
 545 550 555 560  
 Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu  
 565 570 575  
 Leu Pro Asp Asn His Tyr Leu Ser Tyr Gln Ser Ala Leu Ser Lys Asp  
 580 585 590

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Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr Ala  
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Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys  
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<210> 3  
 <211> 1902  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Calcium binding moiety: humcTnC

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 ggcaagctga ccctgaagtt catctgcacc accggcaagc tgcccgtgcc ctggcccacc 180  
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 tatgatgagt tcctggagtt catgaagggt gtggaggagc tcatggtgag caagggcgag 1200  
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 aagttcagcg tgtccggcga gggcgagggc gatgccacct acggcaagct gaccctgaag 1320

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ttcatctgca ccaccggcaa gctgcccgtg ccctggccca ccctcgtgac caccttcggc 1380
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tacaagaccc gcgccgaggt gaagttcgag ggcgacaccc tgggtaaccg catcgagctg 1560
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gccctgagca aagaccccaa cgagaagcgc gatcacatgg tcctgctgga gttcgtgacc 1860
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&lt;210&gt; 4

&lt;211&gt; 633

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Calcium binding moiety: humcTnc

&lt;400&gt; 4

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Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu
1      5      10     15

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Val Glu Leu Asp Gly Asp Val Asn Gly His Arg Phe Ser Val Ser Gly
20     25     30

```

```

Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile
35     40     45

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```

Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr
50     55     60

```

```

Leu Thr Trp Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys
65     70     75     80

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Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
85     90     95

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Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu
100    105    110

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Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly
115    120    125

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Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr  
 130 135 140  
 Asn Tyr Ile Ser His Asn Val Tyr Ile Thr Ala Asp Lys Gln Lys Asn  
 145 150 155 160  
 Gly Ile Lys Ala His Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser  
 165 170 175  
 Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly  
 180 185 190  
 Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu  
 195 200 205  
 Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe  
 210 215 220  
 Val Thr Ala Ala Arg Met Leu Met Asp Asp Ile Tyr Lys Ala Ala Val  
 225 230 235 240  
 Glu Gln Leu Thr Glu Glu Gln Lys Asn Glu Phe Lys Ala Ala Phe Asp  
 245 250 255  
 Ile Phe Val Leu Gly Ala Glu Asp Gly Cys Ile Ser Thr Lys Glu Leu  
 260 265 270  
 Gly Lys Val Met Arg Met Leu Gly Gln Asn Pro Thr Pro Glu Glu Leu  
 275 280 285  
 Gln Glu Met Ile Asp Glu Val Asp Glu Asp Gly Ser Gly Thr Val Asp  
 290 295 300  
 Phe Asp Glu Phe Leu Val Met Met Val Arg Cys Met Lys Asp Asp Ser  
 305 310 315 320  
 Lys Gly Lys Ser Glu Glu Glu Leu Ser Asp Leu Phe Arg Met Phe Asp  
 325 330 335  
 Lys Asn Ala Asp Gly Tyr Ile Asp Leu Asp Glu Leu Lys Ile Met Leu  
 340 345 350  
 Gln Ala Thr Gly Glu Thr Ile Thr Glu Asp Asp Ile Glu Glu Leu Met  
 355 360 365  
 Lys Asp Gly Asp Lys Asn Asn Asp Gly Arg Ile Asp Tyr Asp Glu Phe  
 370 375 380  
 Leu Glu Phe Met Lys Gly Val Glu Glu Leu Met Val Ser Lys Gly Glu  
 385 390 395 400

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Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp  
 405 410 415  
 Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly Asp Ala  
 420 425 430  
 Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly Lys Leu  
 435 440 445  
 Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe Gly Tyr Gly Leu Met  
 450 455 460  
 Cys Phe Ala Arg Tyr Pro Asp His Met Arg Gln His Asp Phe Phe Lys  
 465 470 475 480  
 Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe Phe Lys  
 485 490 495  
 Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu Gly Asp  
 500 505 510  
 Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys Glu Asp  
 515 520 525  
 Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser His Asn  
 530 535 540  
 Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile Lys Ala Asn Phe  
 545 550 555 560  
 Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu Ala Asp His  
 565 570 575  
 Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu Pro Asp  
 580 585 590  
 Asn His Tyr Leu Ser Tyr Gln Ser Ala Leu Ser Lys Asp Pro Asn Glu  
 595 600 605  
 Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr Ala Ala Gly Ile  
 610 615 620  
 Thr Leu Gly Met Asp Glu Leu Tyr Lys  
 625 630

&lt;210&gt; 5

&lt;211&gt; 1863

&lt;212&gt; DNA



## Troponinindikatoren PCT.ST25

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Calcium binding moiety: csTnC 15-163

&lt;400&gt; 5

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gtgaaccgca tcgagctgaa gggcatcgac ttcaaggagg acggcaacat cctggggcac	420
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aacggcatca aggccaactt caagatccgc cacaacatcg aggacggcag cgtgcagctc	1680
gccgaccact accagcagaa ccccccatc ggcgacggcc ccgtgctgct gcccgacaac	1740
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 taa 1863

&lt;210&gt; 6

&lt;211&gt; 620

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Calcium binding moiety: csTnC 15-163

&lt;400&gt; 6

Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu  
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Val Glu Leu Asp Gly Asp Val Asn Gly His Arg Phe Ser Val Ser Gly  
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Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile  
 35 40 45

Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr  
 50 55 60

Leu Thr Trp Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys  
 65 70 75 80

Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu  
 85 90 95

Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu  
 100 105 110

Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly  
 115 120 125

Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr  
 130 135 140

Asn Tyr Ile Ser His Asn Val Tyr Ile Thr Ala Asp Lys Gln Lys Asn  
 145 150 155 160

Gly Ile Lys Ala His Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser  
 165 170 175

Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly  
 180 185 190

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Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu  
 195 200 205  
 Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe  
 210 215 220  
 Val Thr Ala Ala Arg Met Leu Ser Glu Glu Met Ile Ala Glu Phe Lys  
 225 230 235 240  
 Ala Ala Phe Asp Met Phe Asp Ala Asp Gly Gly Gly Asp Ile Ser Thr  
 245 250 255  
 Lys Glu Leu Gly Thr Val Met Arg Met Leu Gly Gln Asn Pro Thr Lys  
 260 265 270  
 Glu Glu Leu Asp Ala Ile Ile Glu Glu Val Asp Glu Asp Gly Ser Gly  
 275 280 285  
 Thr Ile Asp Phe Glu Glu Phe Leu Val Met Met Val Arg Gln Met Lys  
 290 295 300  
 Glu Asp Ala Lys Gly Lys Ser Glu Glu Glu Leu Ala Asn Cys Phe Arg  
 305 310 315 320  
 Ile Phe Ala Lys Asn Ala Asp Gly Phe Ile Asp Ile Glu Glu Leu Gly  
 325 330 335  
 Glu Ile Leu Arg Ala Thr Gly Glu His Val Ile Glu Glu Asp Ile Glu  
 340 345 350  
 Asp Leu Met Lys Asp Ser Asp Lys Asn Asn Asp Gly Arg Ile Asp Phe  
 355 360 365  
 Asp Glu Phe Leu Lys Met Met Glu Gly Val Gln Glu Leu Met Val Ser  
 370 375 380  
 Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu  
 385 390 395 400  
 Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu  
 405 410 415  
 Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr  
 420 425 430  
 Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe Gly Tyr  
 435 440 445  
 Gly Leu Met Cys Phe Ala Arg Tyr Pro Asp His Met Arg Gln His Asp  
 450 455 460

## Troponinindikatoren PCT.ST25

Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile  
 465 470 475 480

Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe  
 485 490 495

Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe  
 500 505 510

Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn  
 515 520 525

Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile Lys  
 530 535 540

Ala Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu  
 545 550 555 560

Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu  
 565 570 575

Leu Pro Asp Asn His Tyr Leu Ser Tyr Gln Ser Ala Leu Ser Lys Asp  
 580 585 590

Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr Ala  
 595 600 605

Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys  
 610 615 620

<210> 7

<211> 1908

<212> DNA

<213> Artificial Sequence

<220>

<223> Calcium binding moiety: cSTnC

<400> 7

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ttcaaggacg acggcaacta caagaccgcg gccgaggtga agttcgaggg cgacaccctg	360

## Troponinindikatoren PCT.ST25

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 ggcacccaagg ccacttcaa gatccgccac aacatcgagg acggcagcgt gcagctcgcc 540  
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 ctgctggagt tcgtgaccgc cgcccgcatg ctaatggcgt caatgacgga ccagcaggcg 720  
 gaggccccgc ctttcctcag cgaggagatg attgctgagt tcaaagctgc ctttgacatg 780  
 tttgatgcgg acggtggtgg ggacatcagc accaaggagt tgggcacggt gatgaggatg 840  
 ctgggccaga accccaccaa agaggagctg gatgccatca tcgaggaggt ggacgaggat 900  
 ggcagcggca ccatcgactt cgaggagtgc ctggtgatga tgggtgcgcca gatgaaagag 960  
 gacgccaagg gcaagtctga ggaggagctg gccactgct tccgcactct cgacaagaac 1020  
 gctgatgggt tcacgacat cgaggagctg ggtgagattc tcagggccac tggggagcac 1080  
 gtcacgagg aggacataga agacctcatg aaggattcag acaagaacaa tgacggccgc 1140  
 attgacttcg atgagttcct gaagatgatg gaggggtgac aggagctcat ggtgagcaag 1200  
 ggcgaggagc tggtcaccgg ggtggtgccc atcctggtcg agctggacgg cgacgtaaac 1260  
 ggccacaagt tcagcgtgct cgccgagggc gagggcgatg ccacctacgg caagctgacc 1320  
 ctgaagttca tctgcaccac cggcaagctg cccgtgccct ggcccaccct cgtgaccacc 1380  
 ttcggctacg gcctgatgtg cttcgccgc taccgacgac acatgcgcca gcacgacttc 1440  
 ttcaagtccg ccatgcccga aggtacgtc caggagcgca ccattctctt caaggacgac 1500  
 ggcaactaca agaccgcgc cgaggtgaag ttcgagggcg acaccctggt gaaccgcatc 1560  
 gagctgaagg gcatcgactt caaggaggac ggcaacatcc tggggcacia gctggagtac 1620  
 aactacaaca gccacaacgt ctatatcatg gccgacaagc agaagaacgg catcaaggcc 1680  
 aacttcaaga tccgccacia catcgaggac ggcagcgtgc agctcgccga ccactaccag 1740  
 cagaacaccc ccatcgcgca cggccccgtg ctgctgcccg acaaccacta cctgagctac 1800  
 cagtccgccc tgagcaaaga cccaacgag aagcgcgatc acatggtcct gctggagttc 1860  
 gtgaccgccg ccgggatcac tctcgcatg gacgagctgt acaagtaa 1908

&lt;210&gt; 8

&lt;211&gt; 635

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Calcium binding moiety: cTnC

## Troponinindikatoren PCT.ST25

&lt;400&gt; 8

Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu  
 1 5 10 15

Val Glu Leu Asp Gly Asp Val Asn Gly His Arg Phe Ser Val Ser Gly  
 20 25 30

Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile  
 35 40 45

Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr  
 50 55 60

Leu Thr Trp Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys  
 65 70 75 80

Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu  
 85 90 95

Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu  
 100 105 110

Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly  
 115 120 125

Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr  
 130 135 140

Asn Tyr Ile Ser His Asn Val Tyr Ile Thr Ala Asp Lys Gln Lys Asn  
 145 150 155 160

Gly Ile Lys Ala His Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser  
 165 170 175

Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly  
 180 185 190

Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu  
 195 200 205

Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe  
 210 215 220

Val Thr Ala Ala Arg Met Leu Met Ala Ser Met Thr Asp Gln Gln Ala  
 225 230 235 240

Glu Ala Arg Ala Phe Leu Ser Glu Glu Met Ile Ala Glu Phe Lys Ala  
 245 250 255

Ala Phe Asp Met Phe Asp Ala Asp Gly Gly Gly Asp Ile Ser Thr Lys  
 260 265 270

## Troponinindikatoren PCT.ST25

Glu Leu Gly Thr Val Met Arg Met Leu Gly Gln Asn Pro Thr Lys Glu  
 275 280 285  
 Glu Leu Asp Ala Ile Ile Glu Glu Val Asp Glu Asp Gly Ser Gly Thr  
 290 295 300  
 Ile Asp Phe Glu Glu Phe Leu Val Met Met Val Arg Gln Met Lys Glu  
 305 310 315 320  
 Asp Ala Lys Gly Lys Ser Glu Glu Glu Leu Ala Asn Cys Phe Arg Ile  
 325 330 335  
 Phe Asp Lys Asn Ala Asp Gly Phe Ile Asp Ile Glu Glu Leu Gly Glu  
 340 345 350  
 Ile Leu Arg Ala Thr Gly Glu His Val Ile Glu Glu Asp Ile Glu Asp  
 355 360 365  
 Leu Met Lys Asp Ser Asp Lys Asn Asn Asp Gly Arg Ile Asp Phe Asp  
 370 375 380  
 Glu Phe Leu Lys Met Met Glu Gly Val Gln Glu Leu Met Val Ser Lys  
 385 390 395 400  
 Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp  
 405 410 415  
 Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly  
 420 425 430  
 Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly  
 435 440 445  
 Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe Gly Tyr Gly  
 450 455 460  
 Leu Met Cys Phe Ala Arg Tyr Pro Asp His Met Arg Gln His Asp Phe  
 465 470 475 480  
 Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe  
 485 490 495  
 Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu  
 500 505 510  
 Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys  
 515 520 525  
 Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser  
 530 535 540

## Troponinindikatoren PCT.ST25

His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile Lys Ala  
 545 550 555 560

Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu Ala  
 565 570 575

Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu  
 580 585 590

Pro Asp Asn His Tyr Leu Ser Tyr Gln Ser Ala Leu Ser Lys Asp Pro  
 595 600 605

Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr Ala Ala  
 610 615 620

Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys  
 625 630 635

<210> 9

<211> 1542

<212> DNA

<213> Artificial Sequence

<220>

<223> Calcium binding moiety: cSTnC EF-hand 2, 51-91

<400> 9

atggtgagca agggcgagga gctgttcacc ggggtggtgc ccatcctggt cgagctggac	60
ggcgacgtaa acggccacag gttcagcgtg tccggcgagg gcgagggcga tgccacctac	120
ggcaagctga cctgaagtt catctgcacc accggcaagc tgcccgtgcc ctggcccacc	180
ctcgtgacca cctgacctg gggcgtgcag tgcttcagcc gctaccccga ccacatgaag	240
cagcacgact tcttcaagtc cgccatgccc gaaggctacg tccaggagcg taccatcttc	300
ttcaaggacg acggcaacta caagacccgc gccgaggtga agttcgaggg cgacaccctg	360
gtgaaccgca tcgagctgaa gggcatcgac ttcaaggagg acggcaacat cctggggcac	420
aagctggagt acaactacat cagccacaac gtctatatca ccgccgacaa gcagaagaac	480
ggcatcaagg ccacttcaa gatccgccac aacatcgagg acggcagcgt gcagctcgcc	540
gaccactacc agcagaacac ccccatcggc gacggccccg tgctgctgcc cgacaaccac	600
tacctgagca ccagtcctgc cctgagcaaa gaccccaacg agaagcgcgga tcacatggtc	660
ctgctggagt tcgtgaccgc cgcccgcgtg ctaggccaga accccaccaa agaggagctg	720
gatgccatca tcgaggaggt ggacgaggat ggcagcggca ccatcgactt cgaggagttc	780
ctggtgatga tgggtgcgcca gatgaaagag gacgccgagc tcatggtgag caagggcgag	840



## Troponinindikatoren PCT.ST25

gagctgttca ccggggtggt gcccacctctg gtcgagctgg acggcgacgt aaacggccac 900  
 aagttcagcg tgtccggcga gggcgagggc gatgccacct acggcaagct gaccctgaag 960  
 ttcatctgca ccaccggcaa gctgcccgtg ccctggccca ccctcgtgac caccttcggc 1020  
 tacggcctga tgtgcttcgc ccgctacccc gaccacatgc gccagcacga cttcttcaag 1080  
 tccgccatgc ccgaaggcta cgtccaggag cgcacctatct tcttcaagga cgacggcaac 1140  
 tacaagaccc gcgccgaggt gaagtctgag ggcgacaccc tggatgaaccg catcgagctg 1200  
 aagggcatcg acttcaagga ggacggcaac atcctggggc acaagctgga gtacaactac 1260  
 aacagccaca acgtctatat catggccgac aagcagaaga acggcatcaa ggccaacttc 1320  
 aagatccgcc acaacatcga ggacggcagc gtgcagctcg ccgaccacta ccagcagaac 1380  
 acccccatcg gcgacggccc cgtgctgctg cccgacaacc actacctgag ctaccagtcc 1440  
 gccctgagca aagaccccaa cgagaagcgc gatcacatgg tcctgctgga gttcgtgacc 1500  
 gccgcccggga tcactctcgg catggacgag ctgtacaagt aa 1542

&lt;210&gt; 10

&lt;211&gt; 513

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Calcium binding moiety: cTnC EF-hand 2, 51-91

&lt;400&gt; 10

Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu  
 1 5 10 15

Val Glu Leu Asp Gly Asp Val Asn Gly His Arg Phe Ser Val Ser Gly  
 20 25 30

Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile  
 35 40 45

Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr  
 50 55 60

Leu Thr Trp Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys  
 65 70 75 80

Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu  
 85 90 95

Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu  
 100 105 110

## Troponinindikatoren PCT.ST25

Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly  
 115 120 125  
 Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr  
 130 135 140  
 Asn Tyr Ile Ser His Asn Val Tyr Ile Thr Ala Asp Lys Gln Lys Asn  
 145 150 155 160  
 Gly Ile Lys Ala His Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser  
 165 170 175  
 Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly  
 180 185 190  
 Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu  
 195 200 205  
 Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe  
 210 215 220  
 Val Thr Ala Ala Arg Met Leu Gly Gln Asn Pro Thr Lys Glu Glu Leu  
 225 230 235 240  
 Asp Ala Ile Ile Glu Glu Val Asp Glu Asp Gly Ser Gly Thr Ile Asp  
 245 250 255  
 Phe Glu Glu Phe Leu Val Met Met Val Arg Gln Met Lys Glu Asp Ala  
 260 265 270  
 Glu Leu Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro  
 275 280 285  
 Ile Leu Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val  
 290 295 300  
 Ser Gly Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys  
 305 310 315 320  
 Phe Ile Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val  
 325 330 335  
 Thr Thr Phe Gly Tyr Gly Leu Met Cys Phe Ala Arg Tyr Pro Asp His  
 340 345 350  
 Met Arg Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val  
 355 360 365  
 Gln Glu Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg  
 370 375 380

## Troponinindikatoren PCT.ST25

Ala Glu Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu  
385 390 395 400

Lys Gly Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu  
405 410 415

Glu Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln  
420 425 430

Lys Asn Gly Ile Lys Ala Asn Phe Lys Ile Arg His Asn Ile Glu Asp  
435 440 445

Gly Ser Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly  
450 455 460

Asp Gly Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Tyr Gln Ser  
465 470 475 480

Ala Leu Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu  
485 490 495

Glu Phe Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr  
500 505 510

Lys

<210> 11

<211> 2469

<212> DNA

<213> Artificial Sequence

<220>

<223> Calcium binding moiety: csTnC - Gly-Gly - csTnI

<400> 11

atggtgagca agggcgagga gctgttcacc ggggtggtgc ccatacctggt cgagctggac	60
ggcgacgtaa acggccacag gttcagcgtg tccggcgagg gcgagggcga tgccacctac	120
ggcaagctga ccctgaagtt catctgcacc accggcaagc tgcccgtgcc ctggcccacc	180
ctcgtgacca ccctgacctg gggcgtgcag tgcttcagcc gctaccccga ccacatgaag	240
cagcacgact tcttcaagtc cgccatgccc gaaggctacg tccaggagcg taccatcttc	300
ttcaaggacg acggcaacta caagaccgc gccgaggtga agttcgaggg cgacaccctg	360
gtgaaccgca tcgagctgaa gggcatcgac ttcaaggagg acggcaacat cctggggcac	420
aagctggagt acaactacat cagccacaac gtctatatca ccgccgacaa gcagaagaac	480

## Troponinindikatoren PCT.ST25

ggcatcaagg	cccacttcaa	gatccgccac	aacatcgagg	acggcagcgt	gcagctcgcc	540
gaccactacc	agcagaacac	ccccatcggc	gacggccccg	tgctgctgcc	cgacaaccac	600
tacctgagca	cccagtccgc	cctgagcaaa	gaccccaacg	agaagcgcg	tcacatgggtc	660
ctgctggagt	tcgtgaccgc	cgcccgcatg	ctaattggcgt	caatgacgga	ccagcaggcg	720
gaggccccgc	ccttcctcag	cgaggagatg	attgctgagt	tcaaagctgc	ctttgacatg	780
tttgatgcgg	acggtggtgg	ggacatcagc	accaaggagt	tgggcacggt	gatgaggatg	840
ctggggcaga	acccaccaa	agaggagctg	gatgccatca	tcgaggaggt	ggacgaggat	900
ggcagcgcca	ccatcgactt	cgaggagtgc	ctggtgatga	tggtgcgcca	gatgaaagag	960
gacgccaagg	gcaagtctga	ggaggagctg	gccaactgct	tccgcattct	cgacaagaac	1020
gctgatgggt	tcatcgacat	cgaggagctg	ggtgagattc	tcagggccac	tggggagcac	1080
gtcatcgagg	aggacataga	agacctcatg	aaggattcag	acaagaacaa	tgacggccgc	1140
attgacttcg	atgagttcct	gaagatgatg	gaggggtgtg	aggagctcgg	cgcatgtct	1200
gatgaagaga	aaaagcgtcg	tgagccacc	gcccgctcgt	agcacctgaa	gagtgttatg	1260
ctccagcttg	ctgtcactga	aatagaaaaa	gaagcagctg	ctaaagaagt	ggaaaagcaa	1320
aactacctgg	cagagcatag	ccctcctctg	tccctcccag	ggtccatgca	ggaacttcag	1380
gaactgagca	aaaaacttca	tgccaagata	gactcagtgg	atgaggaaag	gtatgacaca	1440
gaggtgaagc	tacagaagac	taacaaggag	ctggaggacc	tgagccagaa	gctgtttgac	1500
ctgaggggca	agttcaagag	gccacctctg	cgccgggtgc	gcatgtctgc	tgatgccatg	1560
ctgcgtgccc	tgctgggctc	caagcacaag	gtcaacatgg	acctccgggc	caacctgaag	1620
caagtcaaga	aggaggacac	ggagaaggag	aaggacctcc	gcgatgtggg	tgactggagg	1680
aagaacattg	aggagaaatc	tggtatggag	ggcaggaaga	agatgtttga	ggccggcgag	1740
tccgagctca	tggtgagcaa	gggcgaggag	ctgttcaccg	gggtggtgcc	catcctggtc	1800
gagctggacg	gcgacgtaaa	cgccacaaag	ttcagcgtgt	ccggcgaggg	cgagggcgat	1860
gccacctacg	gcaagctgac	cctgaagttc	atctgcacca	ccggcaagct	gcccgtgccc	1920
tggcccaccc	tcgtgaccac	cttcggctac	ggcctgatgt	gcttcgcccc	ctaccccgac	1980
cacatgcgcc	agcacgactt	cttcaagtcc	gccatgcccg	aaggctacgt	ccaggagcgc	2040
accatcttct	tcaaggacga	cggcaactac	aagaccccg	ccgaggtgaa	gttcgagggc	2100
gacaccctgg	tgaaccgcat	cgagctgaag	ggcatcgact	tcaaggagga	cggcaacatc	2160
ctggggcaca	agctggagta	caactacaac	agccacaacg	tctatatcat	ggccgacaag	2220
cagaagaacg	gcatcaaggc	caacttcaag	atccgccaca	acatcgagga	cggcagcgtg	2280
cagctcgccg	accactacca	gcagaacacc	cccatcggcg	acggccccgt	gctgctgccc	2340
gacaaccact	acctgagcta	ccagtccgcc	ctgagcaaa	accccaacga	gaagcgcgat	2400
cacatggtcc	tgctggagtt	cgtgaccgcc	gccgggatca	ctctcggcat	ggacgagctg	2460
tacaagtaa						2469

## Troponinindikatoren PCT.ST25

&lt;210&gt; 12

&lt;211&gt; 822

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Calcium binding moiety: cSTnC - Gly-Gly - cSTnI

&lt;400&gt; 12

Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu  
1 5 10 15Val Glu Leu Asp Gly Asp Val Asn Gly His Arg Phe Ser Val Ser Gly  
20 25 30Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile  
35 40 45Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr  
50 55 60Leu Thr Trp Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys  
65 70 75 80Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu  
85 90 95Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu  
100 105 110Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly  
115 120 125Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr  
130 135 140Asn Tyr Ile Ser His Asn Val Tyr Ile Thr Ala Asp Lys Gln Lys Asn  
145 150 155 160Gly Ile Lys Ala His Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser  
165 170 175Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly  
180 185 190Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu  
195 200 205

## Troponinindikatoren PCT.ST25

Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe  
 210 215 220  
 Val Thr Ala Ala Arg Met Leu Met Ala Ser Met Thr Asp Gln Gln Ala  
 225 230 235 240  
 Glu Ala Arg Ala Phe Leu Ser Glu Glu Met Ile Ala Glu Phe Lys Ala  
 245 250 255  
 Ala Phe Asp Met Phe Asp Ala Asp Gly Gly Gly Asp Ile Ser Thr Lys  
 260 265 270  
 Glu Leu Gly Thr Val Met Arg Met Leu Gly Gln Asn Pro Thr Lys Glu  
 275 280 285  
 Glu Leu Asp Ala Ile Ile Glu Glu Val Asp Glu Asp Gly Ser Gly Thr  
 290 295 300  
 Ile Asp Phe Glu Glu Phe Leu Val Met Met Val Arg Gln Met Lys Glu  
 305 310 315 320  
 Asp Ala Lys Gly Lys Ser Glu Glu Glu Leu Ala Asn Cys Phe Arg Ile  
 325 330 335  
 Phe Asp Lys Asn Ala Asp Gly Phe Ile Asp Ile Glu Glu Leu Gly Glu  
 340 345 350  
 Ile Leu Arg Ala Thr Gly Glu His Val Ile Glu Glu Asp Ile Glu Asp  
 355 360 365  
 Leu Met Lys Asp Ser Asp Lys Asn Asn Asp Gly Arg Ile Asp Phe Asp  
 370 375 380  
 Glu Phe Leu Lys Met Met Glu Gly Val Gln Glu Leu Gly Gly Met Ser  
 385 390 395 400  
 Asp Glu Glu Lys Lys Arg Arg Ala Ala Thr Ala Arg Arg Gln His Leu  
 405 410 415  
 Lys Ser Ala Met Leu Gln Leu Ala Val Thr Glu Ile Glu Lys Glu Ala  
 420 425 430  
 Ala Ala Lys Glu Val Glu Lys Gln Asn Tyr Leu Ala Glu His Ser Pro  
 435 440 445  
 Pro Leu Ser Leu Pro Gly Ser Met Gln Glu Leu Gln Glu Leu Ser Lys  
 450 455 460  
 Lys Leu His Ala Lys Ile Asp Ser Val Asp Glu Glu Arg Tyr Asp Thr  
 465 470 475 480

## Troponinindikatoren PCT.ST25

Glu Val Lys Leu Gln Lys Thr Asn Lys Glu Leu Glu Asp Leu Ser Gln  
 485 490 495  
 Lys Leu Phe Asp Leu Arg Gly Lys Phe Lys Arg Pro Pro Leu Arg Arg  
 500 505 510  
 Val Arg Met Ser Ala Asp Ala Met Leu Arg Ala Leu Leu Gly Ser Lys  
 515 520 525  
 His Lys Val Asn Met Asp Leu Arg Ala Asn Leu Lys Gln Val Lys Lys  
 530 535 540  
 Glu Asp Thr Glu Lys Glu Lys Asp Leu Arg Asp Val Gly Asp Trp Arg  
 545 550 555 560  
 Lys Asn Ile Glu Glu Lys Ser Gly Met Glu Gly Arg Lys Lys Met Phe  
 565 570 575  
 Glu Ala Gly Glu Ser Glu Leu Met Val Ser Lys Gly Glu Glu Leu Phe  
 580 585 590  
 Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp Val Asn Gly  
 595 600 605  
 His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly Asp Ala Thr Tyr Gly  
 610 615 620  
 Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly Lys Leu Pro Val Pro  
 625 630 635 640  
 Trp Pro Thr Leu Val Thr Thr Phe Gly Tyr Gly Leu Met Cys Phe Ala  
 645 650 655  
 Arg Tyr Pro Asp His Met Arg Gln His Asp Phe Phe Lys Ser Ala Met  
 660 665 670  
 Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe Phe Lys Asp Asp Gly  
 675 680 685  
 Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu Gly Asp Thr Leu Val  
 690 695 700  
 Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys Glu Asp Gly Asn Ile  
 705 710 715 720  
 Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile  
 725 730 735  
 Met Ala Asp Lys Gln Lys Asn Gly Ile Lys Ala Asn Phe Lys Ile Arg  
 740 745 750

## Troponinindikatoren PCT.ST25

His Asn Ile Glu Asp Gly Ser Val Gln Leu Ala Asp His Tyr Gln Gln  
 755 760 765

Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu Pro Asp Asn His Tyr  
 770 775 780

Leu Ser Tyr Gln Ser Ala Leu Ser Lys Asp Pro Asn Glu Lys Arg Asp  
 785 790 795 800

His Met Val Leu Leu Glu Phe Val Thr Ala Ala Gly Ile Thr Leu Gly  
 805 810 815

Met Asp Glu Leu Tyr Lys  
 820

<210> 13

<211> 1959

<212> DNA

<213> Artificial Sequence

<220>

<223> Calcium binding moiety: csTnI 116-135 - Gly-Gly - csTnC

<400> 13

atgggtgagca agggcgagga gctgttcacc ggggtggtgc ccatcctggt cgagctggac	60
ggcgagctaa acggccacag gttcagcgtg tccggcgagg gcgagggcga tgccacctac	120
ggcaagctga ccctgaagtt catctgcacc accggcaagc tgcccgtgcc ctggcccacc	180
ctcgtgacca ccctgacctg gggcgtgcag tgcttcagcc gctaccccga ccacatgaag	240
cagcagcact tcttcaagtc cgccatgccc gaaggctacg tccaggagcg taccatcttc	300
ttcaaggacg acggcaacta caagaccgc gccgaggtga agttcgaggg cgacaccctg	360
gtgaaccgca tcgagctgaa gggcatcgac ttcaaggagg acggcaacat cctggggcac	420
aagctggagt acaactacat cagccacaac gtctatatca ccgccgacaa gcagaagaac	480
ggcatcaagg ccacttcaa gatccgccac aacatcgagg acggcagcgt gcagctcgcc	540
gaccactacc agcagaacac ccccatcggc gacggccccg tgctgctgcc cgacaaccac	600
tacctgagca ccagtcctgc cctgagcaaa gaccccaacg agaagcgcgga tcacatggtc	660
ctgctggagt tcgtgaccgc cgcccgcgtg ctcgctgatg ccatgctgcg tgccctgctg	720
ggctccaagc acaaggtaa cggcggcgcg tcaatgacgg accagcaggc ggaggccccg	780
gccttctcta gcgaggagat gattgctgag ttcaaagctg cctttgacat gtttgatgcg	840
gacggtggtg gggacatcag caccaaggag ttgggcacgg tgatgaggat gctgggccag	900
aacccacca aagaggagct ggatgccatc atcgaggagg tggacgagga tggcagcggc	960



## Troponinindikatoren PCT.ST25

accatcgact tcgaggagtt cctggtgatg atggtgcgcc agatgaaaga ggacgccaag 1020  
 ggcaagtctg aggaggagct ggccaactgc ttccgcatct tcgacaagaa cgctgatggg 1080  
 ttcacgcaca tcgaggagct ggggtgagatt ctcagggcca ctggggagca cgtcatcgag 1140  
 gaggacatag aagacctcat gaaggattca gacaagaaca atgacggccg cattgacttc 1200  
 gatgagttcc tgaagatgat ggaggggtgtg caggagctca tgggtgagcaa gggcgaggag 1260  
 ctgttcaccg ggggtggtgcc catcctggtc gagctggacg gcgacgtaaa cggccacaag 1320  
 ttcagcgtgt ccggcgaggg cgagggcgat gccacctacg gcaagctgac cctgaagttc 1380  
 atctgcacca ccggcaagct gcccgtgccc tggcccaccc tcgtgaccac cttcggttac 1440  
 ggctgatgt gtttcgcccg ctaccccgac cacatgcgcc agcacgactt cttcaagtcc 1500  
 gccatgcccg aaggctacgt ccaggagcgc accatcttct tcaaggacga cggcaactac 1560  
 aagaccgcg ccgaggtgaa gttcgagggc gacaccctgg tgaaccgcat cgagctgaag 1620  
 ggcacgcact tcaaggagga cggcaacatc ctggggcaca agctggagta caactacaac 1680  
 agccacaacg tctatatcat ggccgacaag cagaagaacg gcatcaaggc caacttcaag 1740  
 atccgccaca acatcgagga cggcagcgtg cagctcgccg accactacca gcagaacacc 1800  
 cccatcggcg acggccccgt gctgctgccc gacaaccact acctgagcta ccagtccgcc 1860  
 ctgagcaaag accccaacga gaagcgcgat cacatggtcc tgctggagtt cgtgaccgcc 1920  
 gccgggatca ctctcggcac ggacgagctg tacaagtaa 1959

&lt;210&gt; 14

&lt;211&gt; 652

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Calcium binding moiety: cSTnI 116-135 - Gly-Gly - cSTnC

&lt;400&gt; 14

Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu  
 1 5 10 15

Val Glu Leu Asp Gly Asp Val Asn Gly His Arg Phe Ser Val Ser Gly  
 20 25 30

Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile  
 35 40 45

Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr  
 50 55 60

## Troponinindikatoren PCT.ST25

Leu Thr Trp Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys  
65 70 75 80

Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu  
85 90 95

Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu  
100 105 110

Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly  
115 120 125

Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr  
130 135 140

Asn Tyr Ile Ser His Asn Val Tyr Ile Thr Ala Asp Lys Gln Lys Asn  
145 150 155 160

Gly Ile Lys Ala His Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser  
165 170 175

Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly  
180 185 190

Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu  
195 200 205

Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe  
210 215 220

Val Thr Ala Ala Arg Met Leu Ala Asp Ala Met Leu Arg Ala Leu Leu  
225 230 235 240

Gly Ser Lys His Lys Val Asn Gly Gly Ala Ser Met Thr Asp Gln Gln  
245 250 255

Ala Glu Ala Arg Ala Phe Leu Ser Glu Glu Met Ile Ala Glu Phe Lys  
260 265 270

Ala Ala Phe Asp Met Phe Asp Ala Asp Gly Gly Gly Asp Ile Ser Thr  
275 280 285

Lys Glu Leu Gly Thr Val Met Arg Met Leu Gly Gln Asn Pro Thr Lys  
290 295 300

Glu Glu Leu Asp Ala Ile Ile Glu Glu Val Asp Glu Asp Gly Ser Gly  
305 310 315 320

Thr Ile Asp Phe Glu Glu Phe Leu Val Met Met Val Arg Gln Met Lys  
325 330 335

## Troponinindikatoren PCT.ST25

Glu Asp Ala Lys Gly Lys Ser Glu Glu Leu Ala Asn Cys Phe Arg  
 340 345 350  
 Ile Phe Asp Lys Asn Ala Asp Gly Phe Ile Asp Ile Glu Glu Leu Gly  
 355 360 365  
 Glu Ile Leu Arg Ala Thr Gly Glu His Val Ile Glu Glu Asp Ile Glu  
 370 375 380  
 Asp Leu Met Lys Asp Ser Asp Lys Asn Asn Asp Gly Arg Ile Asp Phe  
 385 390 395 400  
 Asp Glu Phe Leu Lys Met Met Glu Gly Val Gln Glu Leu Met Val Ser  
 405 410 415  
 Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu  
 420 425 430  
 Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu  
 435 440 445  
 Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr  
 450 455 460  
 Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe Gly Tyr  
 465 470 475 480  
 Gly Leu Met Cys Phe Ala Arg Tyr Pro Asp His Met Arg Gln His Asp  
 485 490 495  
 Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile  
 500 505 510  
 Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe  
 515 520 525  
 Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe  
 530 535 540  
 Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn  
 545 550 555 560  
 Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile Lys  
 565 570 575  
 Ala Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu  
 580 585 590  
 Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu  
 595 600 605

## Troponinindikatoren PCT.ST25

Leu Pro Asp Asn His Tyr Leu Ser Tyr Gln Ser Ala Leu Ser Lys Asp  
 610 615 620

Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr Ala  
 625 630 635 640

Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys  
 645 650

- <210> 15  
 <211> 1827  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Calcium binding moiety: csTnI 95-131 - Gly-Ser-Gly - csTnC 1-91

<400> 15

atggtgagca agggcgagga gctgttcacc ggggtggtgc ccatcctggt cgagctggac 60  
 ggcgacgtaa acggccacag gttcagcgtg tccggcgagg gcgagggcga tgccacctac 120  
 ggcaagctga ccctgaagtt catctgcacc accggcaagc tgcccgtgcc ctggcccacc 180  
 ctcgtgacca ccctgacctg gggcgtgcag tgcttcagcc gctaccccga ccacatgaag 240  
 cagcacgact tcttcaagtc cgccatgccc gaaggctacg tccaggagcg taccatcttc 300  
 ttcaaggacg acggcaacta caagaccgc gccgaggtga agttcgaggg cgacaccctg 360  
 gtgaaccgca tcgagctgaa gggcatcgac ttcaaggagg acggcaacat cctggggcac 420  
 aagctggagt acaactacat cagccacaac gtctatatca ccgccgacaa gcagaagaac 480  
 ggcatcaagg ccacttcaa gatccgccac aacatcgagg acggcagcgt gcagctcgcc 540  
 gaccactacc agcagaacac ccccatcggc gacggccccg tgctgctgcc cgacaaccac 600  
 tacctgagca ccagtcgac cctgagcaaa gaccccaacg agaagcgcgga tcacatggtc 660  
 ctgctggagt tcgtgaccgc cgcccgcatg ctagacctga gccagaagct gtttgacctg 720  
 aggggcaagt tcaagaggcc acctctgcgc cggtgctgca tgtctgctga tgccatgctg 780  
 cgtgccctgc tgggctccaa gcacaaggct ggcagcggca gcatgctaag ggcgtcaatg 840  
 acggaccagc aggcggaggc ccgcgccctc ctcagcgagg agatgattgc tgagttcaaa 900  
 gctgcctttg acatgtttga tgccgacggt ggtggggaca tcagcaccaa ggagttgggc 960  
 acggtgatga ggatgctggg ccagaacccc accaaagagg agctggatgc catcatcgag 1020  
 gaggtggacg aggatggcag cggcaccatc gacttcgagg agttcctggt gatgatggtg 1080  
 cgccagatga aagaggacgc cgagctcatg gtgagcaagg gcgaggagct gttcaccggg 1140  
 gtggtgccc aacctgctga gctggacggc gacgtaaagc gccacaagtt cagcgtgtcc 1200  
 ggcgagggcg agggcgatgc cacctacggc aagctgacct tgaagttcat ctgcaccacc 1260

## Troponinindikatoren PCT.ST25

```

ggcaagctgc ccgtgccctg gcccaccctc gtgaccacct tcggctacgg cctgatgtgc 1320
ttcggccgct accccgacca catgcgccag cactgttct tcaagtccgc catgcccga 1380
ggctacgtcc aggagcgac catcttcttc aaggacgac gcaactacaa gaccgcgcc 1440
gaggtgaagt tcgagggcga caccctggtg aaccgcatcg agctgaaggg catcgacttc 1500
aaggaggacg gcaacatcct ggggcacaag ctggagtaca actacaacag ccacaacgtc 1560
tatatcatgg ccgacaagca gaagaacggc atcaaggcca acttcaagat ccgccacaac 1620
atcgaggacg gcagcgtgca gctcgccgac cactaccagc agaacacccc catcggcgac 1680
ggccccgtgc tgctgccga caaccactac ctgagctacc agtccgccct gagcaaagac 1740
cccaacgaga agcgcgatca catggtcctg ctggagtctg tgaccgccgc cgggatcact 1800
ctcggcatgg acgagctgta caagtaa 1827

```

&lt;210&gt; 16

&lt;211&gt; 608

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Calcium binding moiety: csTnI 95-131 - Gly-Ser-Gly - csTnC 1-91

&lt;400&gt; 16

```

Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu
1      5      10     15

```

```

Val Glu Leu Asp Gly Asp Val Asn Gly His Arg Phe Ser Val Ser Gly
20     25     30

```

```

Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile
35     40     45

```

```

Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr
50     55     60

```

```

Leu Thr Trp Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys
65     70     75     80

```

```

Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
85     90     95

```

```

Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu
100    105    110

```

```

Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly
115    120    125

```

## Troponinindikatoren PCT.ST25

Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr  
 130 135 140

Asn Tyr Ile Ser His Asn Val Tyr Ile Thr Ala Asp Lys Gln Lys Asn  
 145 150 155 160

Gly Ile Lys Ala His Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser  
 165 170 175

Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly  
 180 185 190

Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu  
 195 200 205

Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe  
 210 215 220

Val Thr Ala Ala Arg Met Leu Asp Leu Ser Gln Lys Leu Phe Asp Leu  
 225 230 235 240

Arg Gly Lys Phe Lys Arg Pro Pro Leu Arg Arg Val Arg Met Ser Ala  
 245 250 255

Asp Ala Met Leu Arg Ala Leu Leu Gly Ser Lys His Lys Val Gly Ser  
 260 265 270

Gly Ser Met Leu Met Ala Ser Met Thr Asp Gln Gln Ala Glu Ala Arg  
 275 280 285

Ala Phe Leu Ser Glu Glu Met Ile Ala Glu Phe Lys Ala Ala Phe Asp  
 290 295 300

Met Phe Asp Ala Asp Gly Gly Gly Asp Ile Ser Thr Lys Glu Leu Gly  
 305 310 315 320

Thr Val Met Arg Met Leu Gly Gln Asn Pro Thr Lys Glu Glu Leu Asp  
 325 330 335

Ala Ile Ile Glu Glu Val Asp Glu Asp Gly Ser Gly Thr Ile Asp Phe  
 340 345 350

Glu Glu Phe Leu Val Met Met Val Arg Gln Met Lys Glu Asp Ala Glu  
 355 360 365

Leu Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile  
 370 375 380

Leu Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser  
 385 390 395 400

## Troponinindikatoren PCT.ST25

Gly Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe  
 405 410 415

Ile Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr  
 420 425 430

Thr Phe Gly Tyr Gly Leu Met Cys Phe Ala Arg Tyr Pro Asp His Met  
 435 440 445

Arg Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln  
 450 455 460

Glu Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala  
 465 470 475 480

Glu Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys  
 485 490 495

Gly Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu  
 500 505 510

Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys  
 515 520 525

Asn Gly Ile Lys Ala Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly  
 530 535 540

Ser Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp  
 545 550 555 560

Gly Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Tyr Gln Ser Ala  
 565 570 575

Leu Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu  
 580 585 590

Phe Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys  
 595 600 605

<210> 17

<211> 1869

<212> DNA

<213> Artificial Sequence

<220>

<223> Calcium binding moiety: csTnI 12-161

## Troponinindikatoren PCT.ST25

&lt;400&gt; 17

atggtgagca agggcgagga gctgttcacc ggggtggtgc ccatcctggt cgagctggac	60
ggcgacgtaa acggccacag gttcagcgtg tccggcgagg gcgagggcga tgccacctac	120
ggcaagctga ccctgaagtt catctgcacc accggcaagc tgcccgtgcc ctggcccacc	180
ctcgtgacca ccctgacctg gggcgtgcag tgcttcagcc gctaccccga ccacatgaag	240
cagcacgact tcttcaagtc cgccatgccc gaaggctacg tccaggagcg taccatcttc	300
ttcaaggacg acggcaacta caagacccgc gccgaggtga agttcgaggg cgacaccctg	360
gtgaaccgca tcgagctgaa gggcatcgac ttcaaggagg acggcaacat cctggggcac	420
aagctggagt acaactacat cagccacaac gtctatatca ccgccgacaa gcagaagaac	480
ggcatcaagg cccacttcaa gatccgccac aacatcgagg acggcagcgt gcagctcgcc	540
gaccactacc agcagaacac ccccatcggc gacggccccg tgctgctgcc cgacaaccac	600
tacctgagca ccagtcctgc cctgagcaaa gaccccaacg agaagcgcgga tcacatggtc	660
ctgctggagt tcgtgaccgc cgcccgcatg ctgctgacag aagagcagaa aaatgagttc	720
aaggcagcct tcgacatctt cgtgctgggc gctgaggatg gctgcatcag caccaaggag	780
ctgggcaagg tgatgaggat gctggggcag aacccccacc ctgaggagct gcaggagatg	840
atcgatgagg tggacgagga cggcagcggc acggtggact ttgatgagtt cctgggtcatg	900
atggttcggt gcatgaagga cgacagcaaa gggaaatctg aggaggagct gtctgacctc	960
ttccgcatgt ttgacaaaaa tgctgatggc tacatcgacc tggatgagct gaagataatg	1020
ctgcaggcta caggcgagac catcacggag gacgacatcg aggaactcat gaaggacgga	1080
gacaagaaca acgacggccg catcgactat gatgagttcc tggagttcat gaaggggtgtg	1140
gaggagctca tggtagcaaa gggcgaggag ctgttcaccg ggggtggtgcc catcctggtc	1200
gagctggacg gcgacgtaaa cggccacaag ttcagcgtgt ccggcgaggg cgagggcgat	1260
gccacctacg gcaagctgac cctgaagttc atctgcacca ccggcaagct gcccgtgccc	1320
tgggccaccc tcgtgaccac cttcggctac ggcctgatgt gcttcgcccg ctaccccgac	1380
cacatgcgcc agcacgactt cttcaagtcc gccatgcccg aaggctacgt ccaggagcgc	1440
accatcttct tcaaggacga cggcaactac aagacccgcg ccgaggtgaa gttcgagggc	1500
gacaccctgg tgaaccgcat cgagctgaag ggcacgact tcaaggagga cggcaacatc	1560
ctggggcaca agctggagta caactacaac agccacaacg tctatatcat ggccgacaag	1620
cagaagaacg gcatcaaggc caacttcaag atccgccaca acatcgagga cggcagcgtg	1680
cagctcgccg accactacca gcagaacacc cccatcggcg acggccccgt gctgctgccc	1740
gacaaccact acctgagcta ccagtcgcc ctgagcaaag accccaacga gaagcgcgat	1800
cacatggtcc tgctggagtt cgtgaccgcc gccgggatca ctctcgcat ggacgagctg	1860
tacaagtaa	1869

&lt;210&gt; 18



## Troponinindikatoren PCT.ST25

&lt;211&gt; 622

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Calcium binding moiety: csTnI 12-161

&lt;400&gt; 18

Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu  
 1 5 10 15

Val Glu Leu Asp Gly Asp Val Asn Gly His Arg Phe Ser Val Ser Gly  
 20 25 30

Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile  
 35 40 45

Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr  
 50 55 60

Leu Thr Trp Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys  
 65 70 75 80

Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu  
 85 90 95

Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu  
 100 105 110

Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly  
 115 120 125

Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr  
 130 135 140

Asn Tyr Ile Ser His Asn Val Tyr Ile Thr Ala Asp Lys Gln Lys Asn  
 145 150 155 160

Gly Ile Lys Ala His Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser  
 165 170 175

Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly  
 180 185 190

Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu  
 195 200 205

Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe  
 210 215 220

## Troponinindikatoren PCT.ST25

Val Thr Ala Ala Arg Met Leu Leu Thr Glu Glu Gln Lys Asn Glu Phe  
225 230 235 240

Lys Ala Ala Phe Asp Ile Phe Val Leu Gly Ala Glu Asp Gly Cys Ile  
245 250 255

Ser Thr Lys Glu Leu Gly Lys Val Met Arg Met Leu Gly Gln Asn Pro  
260 265 270

Thr Pro Glu Glu Leu Gln Glu Met Ile Asp Glu Val Asp Glu Asp Gly  
275 280 285

Ser Gly Thr Val Asp Phe Asp Glu Phe Leu Val Met Met Val Arg Cys  
290 295 300

Met Lys Asp Asp Ser Lys Gly Lys Ser Glu Glu Glu Leu Ser Asp Leu  
305 310 315 320

Phe Arg Met Phe Asp Lys Asn Ala Asp Gly Tyr Ile Asp Leu Asp Glu  
325 330 335

Leu Lys Ile Met Leu Gln Ala Thr Gly Glu Thr Ile Thr Glu Asp Asp  
340 345 350

Ile Glu Glu Leu Met Lys Asp Gly Asp Lys Asn Asn Asp Gly Arg Ile  
355 360 365

Asp Tyr Asp Glu Phe Leu Glu Phe Met Lys Gly Val Glu Glu Leu Met  
370 375 380

Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val  
385 390 395 400

Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu  
405 410 415

Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys  
420 425 430

Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe  
435 440 445

Gly Tyr Gly Leu Met Cys Phe Ala Arg Tyr Pro Asp His Met Arg Gln  
450 455 460

His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg  
465 470 475 480

Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val  
485 490 495

## Troponinindikatoren PCT.ST25

Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile  
 500 505 510

Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn  
 515 520 525

Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly  
 530 535 540

Ile Lys Ala Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val  
 545 550 555 560

Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro  
 565 570 575

Val Leu Leu Pro Asp Asn His Tyr Leu Ser Tyr Gln Ser Ala Leu Ser  
 580 585 590

Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val  
 595 600 605

Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys  
 610 615 620

<210> 19

<211> 486

<212> DNA

<213> Homo sapiens

<400> 19

atggatgaca tctacaaggc tgcggtagag cagctgacag aagagcagaa aaatgagttc	60
aaggcagcct tcgacatctt cgtgctgggc gctgaggatg gctgcatcag caccaaggag	120
ctgggcaagg tgatgaggat gctgggccag aacccaccc ctgaggagct gcaggagatg	180
atcgatgagg tggacgagga cggcagcggc acggtggact ttgatgagtt cctgggtcatg	240
atggttcggg gcatgaagga cgacagcaaa gggaaatctg aggaggagct gtctgacctc	300
ttccgcatgt ttgacaaaaa tgctgatggc tacatcgacc tggatgagct gaagataatg	360
ctgcaggcta caggcgagac catcacggag gacgacatcg aggagctcat gaaggacgga	420
gacaagaaca acgacggccg catcgactat gatgagttcc tggagttcat gaagggtgtg	480
gagtag	486

<210> 20

<211> 161

## Troponinindikatoren PCT.ST25

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 20

Met Asp Asp Ile Tyr Lys Ala Ala Val Glu Gln Leu Thr Glu Glu Gln  
 1 5 10 15

Lys Asn Glu Phe Lys Ala Ala Phe Asp Ile Phe Val Leu Gly Ala Glu  
 20 25 30

Asp Gly Cys Ile Ser Thr Lys Glu Leu Gly Lys Val Met Arg Met Leu  
 35 40 45

Gly Gln Asn Pro Thr Pro Glu Glu Leu Gln Glu Met Ile Asp Glu Val  
 50 55 60

Asp Glu Asp Gly Ser Gly Thr Val Asp Phe Asp Glu Phe Leu Val Met  
 65 70 75 80

Met Val Arg Cys Met Lys Asp Asp Ser Lys Gly Lys Ser Glu Glu Glu  
 85 90 95

Leu Ser Asp Leu Phe Arg Met Phe Asp Lys Asn Ala Asp Gly Tyr Ile  
 100 105 110

Asp Leu Asp Glu Leu Lys Ile Met Leu Gln Ala Thr Gly Glu Thr Ile  
 115 120 125

Thr Glu Asp Asp Ile Glu Glu Leu Met Lys Asp Gly Asp Lys Asn Asn  
 130 135 140

Asp Gly Arg Ile Asp Tyr Asp Glu Phe Leu Glu Phe Met Lys Gly Val  
 145 150 155 160

Glu

&lt;210&gt; 21

&lt;211&gt; 633

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 21

atggcggtatg ggagcagcga tgcggctagg gaacctcgcc ctgcaccagc cccaatcaga 60

cgccgctcct ccaactaccg cgcttatgcc acggagccgc acgccaagaa aaaatctaag 120

atctccgcct cgagaaaatt gcagctgaag actctgctgc tgcagattgc aaagcaagag 180

## Troponinindikatoren PCT.ST25

ctggagcgag aggcggagga gcggcgcgga gagaaggggc gcgctctgag caccgcgtgc 240  
 cagccgctgg agttgaccgg gctgggcttc gcggagctgc aggacttggt cgcacagctc 300  
 cacgcccgtg tggacaaggt ggatgaagag agatacgaca tagaggcaaa agtcaccaag 360  
 aacatcacgg agattgcaga tctgactcag aagatctttg accttcgagg caagttaaag 420  
 cggccaccc tgcggagagt gaggatctct gcagatgcca tgatgcaggc gctgctgggg 480  
 gcccgggcta aggagtcctt ggacctgcgg gcccacctca agcaggtgaa gaaggaggac 540  
 accgagaagg aaaaccggga ggtgggagac tggcggaaga acatcgatgc actgagtgga 600  
 atggagggcc gcaagaaaaa gtttgagagc tga 633

&lt;210&gt; 22

&lt;211&gt; 210

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 22

Met Ala Asp Gly Ser Ser Asp Ala Ala Arg Glu Pro Arg Pro Ala Pro  
 1 5 10 15  
 Ala Pro Ile Arg Arg Arg Ser Ser Asn Tyr Arg Ala Tyr Ala Thr Glu  
 20 25 30  
 Pro His Ala Lys Lys Lys Ser Lys Ile Ser Ala Ser Arg Lys Leu Gln  
 35 40 45  
 Leu Lys Thr Leu Leu Leu Gln Ile Ala Lys Gln Glu Leu Glu Arg Glu  
 50 55 60  
 Ala Glu Glu Arg Arg Gly Glu Lys Gly Arg Ala Leu Ser Thr Arg Cys  
 65 70 75 80  
 Gln Pro Leu Glu Leu Thr Gly Leu Gly Phe Ala Glu Leu Gln Asp Leu  
 85 90 95  
 Cys Arg Gln Leu His Ala Arg Val Asp Lys Val Asp Glu Glu Arg Tyr  
 100 105 110  
 Asp Ile Glu Ala Lys Val Thr Lys Asn Ile Thr Glu Ile Ala Asp Leu  
 115 120 125  
 Thr Gln Lys Ile Phe Asp Leu Arg Gly Lys Phe Lys Arg Pro Thr Leu  
 130 135 140  
 Arg Arg Val Arg Ile Ser Ala Asp Ala Met Met Gln Ala Leu Leu Gly  
 145 150 155 160

## Troponinindikatoren PCT.ST25

Ala Arg Ala Lys Glu Ser Leu Asp Leu Arg Ala His Leu Lys Gln Val  
 165 170 175

Lys Lys Glu Asp Thr Glu Lys Glu Asn Arg Glu Val Gly Asp Trp Arg  
 180 185 190

Lys Asn Ile Asp Ala Leu Ser Gly Met Glu Gly Arg Lys Lys Lys Phe  
 195 200 205

Glu Ser  
 210

<210> 23

<211> 483

<212> DNA

<213> Homo sapiens

<400> 23

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 aaggctgcct ttgacatggt tgatgctgat ggtggtggg acatcagcgt caaggagttg 120  
 ggcacggtga tgaggatgct gggccagaca cccaccaagg aggagctgga cgccatcatc 180  
 gaggaggtgg atgaggacgg cagcggcacc atcgacttcg aggagttctt ggatcatgatg 240  
 gtgcgccaga tgaaagagga cgcgaaagg aagagcgagg aggagctggc cgagtgccttc 300  
 cgcattcttcg acaggaatgc agacggctac atcgaccgg aggagctggc tgagattttc 360  
 agggcctccg gggagcacgt gactgacgag gagatcgaat ctctgatgaa agacggcgac 420  
 aagaacaacg acggccgcat tgacttcgac gagttcctga agatgatgga gggcgtgcag 480  
 taa 483

<210> 24

<211> 160

<212> PRT

<213> Homo sapiens

<400> 24

Met Thr Asp Gln Gln Ala Glu Ala Arg Ser Tyr Leu Ser Glu Glu Met  
 1 5 10 15

Ile Ala Glu Phe Lys Ala Ala Phe Asp Met Phe Asp Ala Asp Gly Gly  
 20 25 30

## Troponinindikatoren PCT.ST25

Gly Asp Ile Ser Val Lys Glu Leu Gly Thr Val Met Arg Met Leu Gly  
 35 40 45

Gln Thr Pro Thr Lys Glu Glu Leu Asp Ala Ile Ile Glu Glu Val Asp  
 50 55 60

Glu Asp Gly Ser Gly Thr Ile Asp Phe Glu Glu Phe Leu Val Met Met  
 65 70 75 80

Val Arg Gln Met Lys Glu Asp Ala Lys Gly Lys Ser Glu Glu Glu Leu  
 85 90 95

Ala Glu Cys Phe Arg Ile Phe Asp Arg Asn Ala Asp Gly Tyr Ile Asp  
 100 105 110

Pro Glu Glu Leu Ala Glu Ile Phe Arg Ala Ser Gly Glu His Val Thr  
 115 120 125

Asp Glu Glu Ile Glu Ser Leu Met Lys Asp Gly Asp Lys Asn Asn Asp  
 130 135 140

Gly Arg Ile Asp Phe Asp Glu Phe Leu Lys Met Met Glu Gly Val Gln  
 145 150 155 160

<210> 25

<211> 492

<212> DNA

<213> Gallus gallus

<400> 25  
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 aaggagttgg gcacggtgat gaggatgctg ggccagaacc ccaccaaaga ggagctggat 180  
 gccatcatcg aggaggtgga cgaggatggc agcggcacca tcgacttcga ggagttcctg 240  
 gtgatgatgg tgcgccagat gaaagaggac gccaagggca agtctgagga ggagctggcc 300  
 aactgcttcc gcatcttcga caagaacgct gatgggttca tcgacatcga ggagctgggt 360  
 gagattctca gggccactgg ggagcacgtc atcgaggagg acatagaaga cctcatgaag 420  
 gattcagaca agaacaatga cggccgcatt gacttcgatg agttcctgaa gatgatggag 480  
 ggtgtgcagt aa 492

<210> 26

<211> 163

<212> PRT

## Troponinindikatoren PCT.ST25

&lt;213&gt; Gallus gallus

&lt;400&gt; 26

Met Ala Ser Met Thr Asp Gln Gln Ala Glu Ala Arg Ala Phe Leu Ser  
 1 5 10 15

Glu Glu Met Ile Ala Glu Phe Lys Ala Ala Phe Asp Met Phe Asp Ala  
 20 25 30

Asp Gly Gly Gly Asp Ile Ser Thr Lys Glu Leu Gly Thr Val Met Arg  
 35 40 45

Met Leu Gly Gln Asn Pro Thr Lys Glu Glu Leu Asp Ala Ile Ile Glu  
 50 55 60

Glu Val Asp Glu Asp Gly Ser Gly Thr Ile Asp Phe Glu Glu Phe Leu  
 65 70 75 80

Val Met Met Val Arg Gln Met Lys Glu Asp Ala Lys Gly Lys Ser Glu  
 85 90 95

Glu Glu Leu Ala Asn Cys Phe Arg Ile Phe Asp Lys Asn Ala Asp Gly  
 100 105 110

Phe Ile Asp Ile Glu Glu Leu Gly Glu Ile Leu Arg Ala Thr Gly Glu  
 115 120 125

His Val Ile Glu Glu Asp Ile Glu Asp Leu Met Lys Asp Ser Asp Lys  
 130 135 140

Asn Asn Asp Gly Arg Ile Asp Phe Asp Glu Phe Leu Lys Met Met Glu  
 145 150 155 160

Gly Val Gln

&lt;210&gt; 27

&lt;211&gt; 552

&lt;212&gt; DNA

&lt;213&gt; Gallus gallus

&lt;400&gt; 27

atgtctgatg aagagaaaaa gaggagggca gccaccgccc ggcgccagca cctgaagagt 60

gctatgctcc agcttgctgt cactgaaata gaaaaagaag cagctgctaa agaagtggaa 120

aagcaaaact acctggcaga gcattgccct cctctgtccc tcccaggatc catgcaggaa 180

cttcaggaac tgtgcaaaaa gcttcatgcc aagatagact cagtggatga ggaaaggat 240



## Troponinindikatoren PCT.ST25

gacacagagg tgaagctaca gaagactaac aaggagctgg aggacctgag ccagaagctg 300  
 tttagacctga. ggggcaagtt caagaggcca cctctgcgcc ggggtgcgcatt gtctgctgat 360  
 gccatgctgc gtgccctgct gggctccaag cacaagggtca acatggacct ccgggccaac 420  
 ctgaagcaag tcaagaagga ggacacggag aaggagaagg acctccgcga tgtgggtgac 480  
 tggaggaaga acattgagga gaaatctggc atggagggca ggaagaagat gtttgaggcc 540  
 ggcgagtcct aa 552

&lt;210&gt; 28

&lt;211&gt; 183

&lt;212&gt; PRT

&lt;213&gt; Gallus gallus

&lt;400&gt; 28

Met Ser Asp Glu Glu Lys Lys Arg Arg Ala Ala Thr Ala Arg Arg Gln  
 1 5 10 15

His Leu Lys Ser Ala Met Leu Gln Leu Ala Val Thr Glu Ile Glu Lys  
 20 25 30

Glu Ala Ala Ala Lys Glu Val Glu Lys Gln Asn Tyr Leu Ala Glu His  
 35 40 45

Cys Pro Pro Leu Ser Leu Pro Gly Ser Met Gln Glu Leu Gln Glu Leu  
 50 55 60

Cys Lys Lys Leu His Ala Lys Ile Asp Ser Val Asp Glu Glu Arg Tyr  
 65 70 75 80

Asp Thr Glu Val Lys Leu Gln Lys Thr Asn Lys Glu Leu Glu Asp Leu  
 85 90 95

Ser Gln Lys Leu Phe Asp Leu Arg Gly Lys Phe Lys Arg Pro Pro Leu  
 100 105 110

Arg Arg Val Arg Met Ser Ala Asp Ala Met Leu Arg Ala Leu Leu Gly  
 115 120 125

Ser Lys His Lys Val Asn Met Asp Leu Arg Ala Asn Leu Lys Gln Val  
 130 135 140

Lys Lys Glu Asp Thr Glu Lys Glu Lys Asp Leu Arg Asp Val Gly Asp  
 145 150 155 160

Trp Arg Lys Asn Ile Glu Glu Lys Ser Gly Met Glu Gly Arg Lys Lys  
 165 170 175

## Troponinindikatoren PCT.ST25

Met Phe Glu Ala Gly Glu Ser  
180

<210> 29

<211> 486

<212> DNA

<213> Gallus gallus

<400> 29

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aaggctgcct tcgacatctt cgtgctgggg gcagaggatg gctgcatcag caccaaggag    120
ctggggaagg tgatgaggat gctggggcag aacccacccc ctgaggagct gcaggagatg    180
attgatgagg tggatgagga tggcagtggc actgtggact ttgatgagtt ccttgttatg    240
atggttcggt gtatgaaaga tgacagcaaa ggaaaaactg aagaggagct ctcagatctc    300
ttcaggatgt ttgataagaa tgctgatggc tacatcgatc ttgaggaact gaagatcatg    360
ctacaggcaa ctggagagac gatcactgag gatgacatag aagaactgat gaaagatggg    420
gacaaaaaca atgatggcag gattgactat gacgagttcc tggagttcat gaagggagtt    480
gaataa                                         486

```

<210> 30

<211> 161

<212> PRT

<213> Gallus gallus

<400> 30

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Met Asp Asp Ile Tyr Lys Ala Ala Val Glu Gln Leu Thr Glu Glu Gln
1      5      10      15
Lys Asn Glu Phe Lys Ala Ala Phe Asp Ile Phe Val Leu Gly Ala Glu
20     25     30
Asp Gly Cys Ile Ser Thr Lys Glu Leu Gly Lys Val Met Arg Met Leu
35     40     45
Gly Gln Asn Pro Thr Pro Glu Glu Leu Gln Glu Met Ile Asp Glu Val
50     55     60
Asp Glu Asp Gly Ser Gly Thr Val Asp Phe Asp Glu Phe Leu Val Met
65     70     75     80

```

Met Val Arg Cys Met Lys Asp Asp Ser Lys Gly Lys Thr Glu Glu Glu  
85 90 95

Asp Gly Arg Ile Asp Tyr Asp Glu Phe Leu Glu Phe Met Lys Gly Val  
145 150 155 160

**၄၇၈**

**<213> Artificial Sequence**

<223> calcium binding moiety: TnC41C

<400>	31						
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ggcgacgtaa	acggccacag	gttcagcgtg	tccggcgagg	gcgagggcga	tgccacctac		120
ggcaagctga	ccctgaagtt	catctgcacc	accggcaagc	tgcccgtgcc	ctggccccacc		180
ctcgtgacca	ccctgacctg	gggcgtgcag	tgcttcagcc	gctaccccga	ccacatgaag		240
cagcacgact	tcttcaagtc	cgccatgccc	gaaggctacg	tccaggagcg	taccatcttc		300
ttcaaggacg	acggcaacta	caagaccgc	gccgaggtga	agttcgaggg	cgacaccctg		360
gtgaaccgca	tcgagctgaa	gggcatcgac	ttcaaggagg	acggcaacat	cctggggcac		420
aagctggagt	acaactacat	cagccacaac	gtctatatca	ccgccgacaa	gcagaagaac		480
ggcatcaagg	cccacttcaa	gatccgccac	aacatcgagg	acggcagcgt	gcagctcgcc		540
gaccactacc	agcagaacac	ccccatcggc	gacggccccg	tgctgctgcc	cgacaaccac		600
tacctgagca	cccagtccgc	cctgagcaaa	gacccaacg	agaagcgcga	tcacatggtc		660
ctgctggagt	tcgtgaccgc	cgcccgcatg	ctgagcgatg	aattgactaa	ggagcaaaact		720
gcattactac	gtaatgcatt	taatgctttt	gacctgaaa	aaaatggata	tatcaacaca		780
gctatgggtg	gtacgatact	tagcatgttg	ggtcatcaac	ttgatgatgc	aactcttgct		840
gacattatcg	ctgaagtcga	tgaggatggt	tcgggcaaaa	tcgaatttga	agaattttacc		900

## Troponinindikatoren PCT.ST25

accctggcag cccgcttcct tgtggaagag gacgctgaag ctatgatggc tgaattgaag 960  
 gaagctttcc gcctttacga caaagaagga aatggatata taactactgg tgttcttcgt 1020  
 gaaatcctgc gcgaactaga cgataaattg acaaatgacg acctggacat gatgattgag 1080  
 gaaattgatt ccgatggatc ggggtactgtt gattttgatg aatttatgga agtaatgacc 1140  
 ggtggcgacg acgagctcat ggtgagcaag ggcgaggagc tggtcaccgg ggtggtgccc 1200  
 atcctggtcg agctggacgg cgacgtaaac ggccacaagt tcagcgtgtc cggcgagggc 1260  
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 ttcgagggcg acaccctggt gaaccgcacg gagctgaagg gcatcgactt caaggaggac 1560  
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 aagcgcgatc acatggtcct gctggagttc gtgaccgccg ccgggatcac tctcggcattg 1860  
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&lt;210&gt; 32

&lt;211&gt; 625

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Calcium binding moiety: TnC41C

&lt;400&gt; 32

Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu  
 1 5 10 15

Val Glu Leu Asp Gly Asp Val Asn Gly His Arg Phe Ser Val Ser Gly  
 20 25 30

Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile  
 35 40 45

Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr  
 50 55 60

## Troponinindikatoren PCT.ST25

Leu Thr Trp Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys  
 65 70 75 80  
 Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu  
 85 90 95  
 Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu  
 100 105 110  
 Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly  
 115 120 125  
 Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr  
 130 135 140  
 Asn Tyr Ile Ser His Asn Val Tyr Ile Thr Ala Asp Lys Gln Lys Asn  
 145 150 155 160  
 Gly Ile Lys Ala His Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser  
 165 170 175  
 Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly  
 180 185 190  
 Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu  
 195 200 205  
 Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe  
 210 215 220  
 Val Thr Ala Ala Arg Met Leu Ser Asp Glu Leu Thr Lys Glu Gln Thr  
 225 230 235 240  
 Ala Leu Leu Arg Asn Ala Phe Asn Ala Phe Asp Pro Glu Lys Asn Gly  
 245 250 255  
 Tyr Ile Asn Thr Ala Met Val Gly Thr Ile Leu Ser Met Leu Gly His  
 260 265 270  
 Gln Leu Asp Asp Ala Thr Leu Ala Asp Ile Ile Ala Glu Val Asp Glu  
 275 280 285  
 Asp Gly Ser Gly Gln Ile Glu Phe Glu Glu Phe Thr Thr Leu Ala Ala  
 290 295 300  
 Arg Phe Leu Val Glu Glu Asp Ala Glu Ala Met Met Ala Glu Leu Lys  
 305 310 315 320  
 Glu Ala Phe Arg Leu Tyr Asp Lys Glu Gly Asn Gly Tyr Ile Thr Thr  
 325 330 335

## Troponinindikatoren PCT.ST25

Gly Val Leu Arg Glu Ile Leu Arg Glu Leu Asp Asp Lys Leu Thr Asn  
 340 345 350

Asp Asp Leu Asp Met Met Ile Glu Glu Ile Asp Ser Asp Gly Ser Gly  
 355 360 365

Thr Val Asp Phe Asp Glu Phe Met Glu Val Met Thr Gly Gly Asp Asp  
 370 375 380

Glu Leu Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro  
 385 390 395 400

Ile Leu Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val  
 405 410 415

Ser Gly Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys  
 420 425 430

Phe Ile Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val  
 435 440 445

Thr Thr Phe Gly Tyr Gly Leu Met Cys Phe Ala Arg Tyr Pro Asp His  
 450 455 460

Met Arg Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val  
 465 470 475 480

Gln Glu Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg  
 485 490 495

Ala Glu Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu  
 500 505 510

Lys Gly Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu  
 515 520 525

Glu Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln  
 530 535 540

Lys Asn Gly Ile Lys Ala Asn Phe Lys Ile Arg His Asn Ile Glu Asp  
 545 550 555 560

Gly Ser Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly  
 565 570 575

Asp Gly Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Tyr Gln Ser  
 580 585 590

Ala Leu Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu  
 595 600 605

Troponinindikatoren PCT.ST25

Glu Phe Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr  
 610 615 620

Lys  
625

<210> 33  
 <211> 1866  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Calcium binding moiety: TnC41C 5-154

<400> 33  
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 ctcgtgacca ccctgacctg gggcgtgcag tgcttcagcc gctaccccga ccacatgaag 240  
 cagcacgact tcttcaagtc cgccatgccc gaaggctacg tccaggagcg taccatcttc 300  
 ttcaaggacg acggcaacta caagaccgc gccgaggtga agttcgaggg cgacaccctg 360  
 gtgaaccgca tcgagctgaa gggcatcgac ttcaaggagg acggcaacat cctggggcac 420  
 aagctggagt acaactacat cagccacaac gtctatatca ccgccgacaa gcagaagaac 480  
 ggcataagg cccacttcaa gatccgccac aacatcgagg acggcagcgt gcagctcgcc 540  
 gaccactacc agcagaacac ccccatcggc gacggccccg tgctgctgcc cgacaaccac 600  
 tacctgagca cccagtcgc cctgagcaaa gaccccaacg agaagcgca tcacatggtc 660  
 ctgctggagt tcgtgaccgc cgcccgcatg ctgactaagg agcaaaactgc attactacgt 720  
 aatgcattta atgcttttga ccctgaaaaa aatggatata tcaacacagc tatggtgggt 780  
 acgatactta gcatgttggg tcatcaactt gatgatgcaa ctcttgctga cattatcgct 840  
 gaagtcgatg aggatgggtc gggccaaatc gaatttgaag aatttaccac cctggcagcc 900  
 cgcttccttg tggagagga cgctgaagct atgatggctg aattgaagga agctttccgc 960  
 ctttacgaca aagaaggaaa tggatatata actactggtg ttcttcgtga aatcctgcgc 1020  
 gaactagacg ataaattgac aaatgacgac ctggacatga tgattgagga aattgattcc 1080  
 gatggatcgg gtactgttga ttttgatgaa tttatggaag taatgaccgg tggcgacgac 1140  
 gagctcatgg tgagcaaggg cgaggagctg ttcaccgggg tggtgcccat cctggtcgag 1200  
 ctggacggcg acgtaaaccg ccacaagttc agcgtgtccg gcgagggcga gggcgatgcc 1260  
 acctacggca agctgaccct gaagttcatc tgcaccaccg gcaagctgcc cgtgccctgg 1320  
 cccaccctcg tgaccacctt cggctacggc ctgatgtgct tcgcccgcta ccccgaccac 1380

## Troponinindikatoren PCT.ST25

atgcgccagc acgacttctt caagtccgcc atgcccgaag gctacgtcca ggagcgcacc 1440  
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 accctggtga accgcatcga gctgaagggc atcgacttca aggaggacgg caacatcctg 1560  
 gggcacaagc tggagtacaa ctacaacagc cacaacgtct atatcatggc cgacaagcag 1620  
 aagaacggca tcaaggccaa cttcaagatc cgccacaaca tcgaggacgg cagcgtgcag 1680  
 ctcgccgacc actaccagca gaacaccccc atcgcgacg gccccgtgct gctgccccgac 1740  
 aaccactacc tgagctacca gtccgccctg agcaaagacc ccaacgagaa gcgcgatcac 1800  
 atggtcctgc tggagtctgt gaccgccgcc gggatcactc tcggcatgga cgagctgtac 1860  
 aagtaa 1866

&lt;210&gt; 34

&lt;211&gt; 621

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Calcium binding moiety: TnC41C 5-154

&lt;400&gt; 34

Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu  
 1 5 10 15

Val Glu Leu Asp Gly Asp Val Asn Gly His Arg Phe Ser Val Ser Gly  
 20 25 30

Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile  
 35 40 45

Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr  
 50 55 60

Leu Thr Trp Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys  
 65 70 75 80

Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu  
 85 90 95

Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu  
 100 105 110

Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly  
 115 120 125



Troponinindikatoren PCT.ST25

Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr  
 130 135 140

Asn Tyr Ile Ser His Asn Val Tyr Ile Thr Ala Asp Lys Gln Lys Asn  
 145 150 155 160

Gly Ile Lys Ala His Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser  
 165 170 175

Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly  
 180 185 190

Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu  
 195 200 205

Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe  
 210 215 220

Val Thr Ala Ala Arg Met Leu Thr Lys Glu Gln Thr Ala Leu Leu Arg  
 225 230 235 240

Asn Ala Phe Asn Ala Phe Asp Pro Glu Lys Asn Gly Tyr Ile Asn Thr  
 245 250 255

Ala Met Val Gly Thr Ile Leu Ser Met Leu Gly His Gln Leu Asp Asp  
 260 265 270

Ala Thr Leu Ala Asp Ile Ile Ala Glu Val Asp Glu Asp Gly Ser Gly  
 275 280 285

Gln Ile Glu Phe Glu Glu Phe Thr Thr Leu Ala Ala Arg Phe Leu Val  
 290 295 300

Glu Glu Asp Ala Glu Ala Met Met Ala Glu Leu Lys Glu Ala Phe Arg  
 305 310 315 320

Leu Tyr Asp Lys Glu Gly Asn Gly Tyr Ile Thr Thr Gly Val Leu Arg  
 325 330 335

Glu Ile Leu Arg Glu Leu Asp Asp Lys Leu Thr Asn Asp Asp Leu Asp  
 340 345 350

Met Met Ile Glu Glu Ile Asp Ser Asp Gly Ser Gly Thr Val Asp Phe  
 355 360 365

Asp Glu Phe Met Glu Val Met Thr Gly Gly Asp Asp Glu Leu Met Val  
 370 375 380

Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu  
 385 390 395 400

## Troponinindikatoren PCT.ST25

Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly  
 405 410 415

Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr  
 420 425 430

Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe Gly  
 435 440 445

Tyr Gly Leu Met Cys Phe Ala Arg Tyr Pro Asp His Met Arg Gln His  
 450 455 460

Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr  
 465 470 475 480

Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys  
 485 490 495

Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp  
 500 505 510

Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr  
 515 520 525

Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile  
 530 535 540

Lys Ala Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln  
 545 550 555 560

Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val  
 565 570 575

Leu Leu Pro Asp Asn His Tyr Leu Ser Tyr Gln Ser Ala Leu Ser Lys  
 580 585 590

Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr  
 595 600 605

Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys  
 610 615 620

<210> 35

<211> 465

<212> DNA

<213> Drosophila melanogaster

<400> 35  
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60

## Troponinindikatoren PCT.ST25

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 tcgggcca aa tcgaatttga agaatttacc accctggcag cccgcttcct tgtggaagag 240  
 gacgctgaag ctatgatggc tgaattgaag gaagctttcc gcctttacga caaagaagga 300  
 aatggatata taactactgg tgttcttcgt gaaatcctgc gcgaactaga cgataaattg 360  
 acaaatgacg acctggacat gatgattgag gaaattgatt ccgatggatc ggggtactgtt 420  
 gattttgatg aatttatgga agtaatgacc ggtggcgacg actaa 465

&lt;210&gt; 36

&lt;211&gt; 154

&lt;212&gt; PRT

&lt;213&gt; Drosophila melanogaster

&lt;400&gt; 36

Met Ser Asp Glu Leu Thr Lys Glu Gln Thr Ala Leu Leu Arg Asn Ala  
 1 5 10 15

Phe Asn Ala Phe Asp Pro Glu Lys Asn Gly Tyr Ile Asn Thr Ala Met  
 20 25 30

Val Gly Thr Ile Leu Ser Met Leu Gly His Gln Leu Asp Asp Ala Thr  
 35 40 45

Leu Ala Asp Ile Ile Ala Glu Val Asp Glu Asp Gly Ser Gly Gln Ile  
 50 55 60

Glu Phe Glu Glu Phe Thr Thr Leu Ala Ala Arg Phe Leu Val Glu Glu  
 65 70 75 80

Asp Ala Glu Ala Met Met Ala Glu Leu Lys Glu Ala Phe Arg Leu Tyr  
 85 90 95

Asp Lys Glu Gly Asn Gly Tyr Ile Thr Thr Gly Val Leu Arg Glu Ile  
 100 105 110

Leu Arg Glu Leu Asp Asp Lys Leu Thr Asn Asp Asp Leu Asp Met Met  
 115 120 125

Ile Glu Glu Ile Asp Ser Asp Gly Ser Gly Thr Val Asp Phe Asp Glu  
 130 135 140

Phe Met Glu Val Met Thr Gly Gly Asp Asp  
 145 150

## Troponinindikatoren PCT.ST25

<210> 37  
 <211> 468  
 <212> DNA  
 <213> Drosophila melanogaster

<400> 37  
 atggacaaca ttgacgaaga cctgaccccc gagcagattg ccgttctgca gaaggcattc 60  
 aacagcttcg accaccagaa gaccggcagt atccccaccg aaatggtggc cgatatactc 120  
 cgtcttatgg gtcagccctt cgacaggcag atccttgacg agctgatgca cgaggtcgat 180  
 gaggacaaat ccggtcgctt ggagttcgag gagttcgctc agctggctgc caagttcatc 240  
 gtagaggagg atgatgaggc catgcagaag gacgtgcgcg aggccttccg tctgtacgac 300  
 aagcagggca atggctacat tcccacctcc tgcctgaagg agatcctcaa ggaactggac 360  
 gaccagctga ccgaacagga gctcgacatc atgattgagg aaatcgattc cgacggctct 420  
 ggcaccgttg attttgatga attcatggag atgatgactg gcgagtaa 468

<210> 38  
 <211> 155  
 <212> PRT  
 <213> Drosophila melanogaster

<400> 38  
 Met Asp Asn Ile Asp Glu Asp Leu Thr Pro Glu Gln Ile Ala Val Leu  
 1 5 10 15  
 Gln Lys Ala Phe Asn Ser Phe Asp His Gln Lys Thr Gly Ser Ile Pro  
 20 25 30  
 Thr Glu Met Val Ala Asp Ile Leu Arg Leu Met Gly Gln Pro Phe Asp  
 35 40 45  
 Arg Gln Ile Leu Asp Glu Leu Met His Glu Val Asp Glu Asp Lys Ser  
 50 55 60  
 Gly Arg Leu Glu Phe Glu Glu Phe Val Gln Leu Ala Ala Lys Phe Ile  
 65 70 75 80  
 Val Glu Glu Asp Asp Glu Ala Met Gln Lys Asp Val Arg Glu Ala Phe  
 85 90 95  
 Arg Leu Tyr Asp Lys Gln Gly Asn Gly Tyr Ile Pro Thr Ser Cys Leu  
 100 105 110

## Troponinindikatoren PCT.ST25

Lys Glu Ile Leu Lys Glu Leu Asp Asp Gln Leu Thr Glu Gln Glu Leu  
 115 120 125

Asp Ile Met Ile Glu Glu Ile Asp Ser Asp Gly Ser Gly Thr Val Asp  
 130 135 140

Phe Asp Glu Phe Met Glu Met Met Thr Gly Glu  
 145 150 155

&lt;210&gt; 39

&lt;211&gt; 468

&lt;212&gt; DNA

&lt;213&gt; Drosophila melanogaster

<400> 39  
 atgagcagcg tcgatgaaga tcttacaccc gagcagatcg ccgtgctcca gaaggcggttc 60  
 aacagcttcg atcaccagaa gactggctcc atccccaccg agatggctcg cgacatcctg 120  
 cgcctgatgg gtcagccctt cgacaagaag atcctggagg aactgatcga ggaggtcgat 180  
 gaggacaagt ccggtcgctt ggaattcggc gagttcgtcc agctggctgc caagttcatc 240  
 gtggaggagg atgcggaggc catgcagaag gagctggccg aggcgttccg tttgtacgat 300  
 aagcagggca atggcttcat tcccaccacc tgctgaagg agatcctcaa ggagctggac 360  
 gaccagctga ccgaacagga gctggacatt atgatcgagg agatcgattc cgatggctcc 420  
 ggtacagtgg atttcgatga attcatggag atgatgactg gcgagtaa 468

&lt;210&gt; 40

&lt;211&gt; 155

&lt;212&gt; PRT

&lt;213&gt; Drosophila melanogaster

&lt;400&gt; 40

Met Ser Ser Val Asp Glu Asp Leu Thr Pro Glu Gln Ile Ala Val Leu  
 1 5 10 15

Gln Lys Ala Phe Asn Ser Phe Asp His Gln Lys Thr Gly Ser Ile Pro  
 20 25 30

Thr Glu Met Val Ala Asp Ile Leu Arg Leu Met Gly Gln Pro Phe Asp  
 35 40 45

Lys Lys Ile Leu Glu Glu Leu Ile Glu Glu Val Asp Glu Asp Lys Ser  
 50 55 60

## Troponinindikatoren PCT.ST25

Gly Arg Leu Glu Phe Gly Glu Phe Val Gln Leu Ala Ala Lys Phe Ile  
65 70 75 80

Val Glu Glu Asp Ala Glu Ala Met Gln Lys Glu Leu Ala Glu Ala Phe  
85 90 95

Arg Leu Tyr Asp Lys Gln Gly Asn Gly Phe Ile Pro Thr Thr Cys Leu  
100 105 110

Lys Glu Ile Leu Lys Glu Leu Asp Asp Gln Leu Thr Glu Gln Glu Leu  
115 120 125

Asp Ile Met Ile Glu Glu Ile Asp Ser Asp Gly Ser Gly Thr Val Asp  
130 135 140

Phe Asp Glu Phe Met Glu Met Met Thr Gly Glu  
145 150 155

<210> 41

<211> 1833

<212> DNA

<213> Artificial Sequence

<220>

<223> FRET-pair Cop/Phi; Calcium binding moiety: cSTnC 15-163

<400> 41  
atgggccccg ccatgaagat cgagtgccgc atcaccggca ccctgaacgg cgtggagttc 60  
gagctggtgg gcggcggaga gggcaccccc gagcagggcc gcatgaccaa caagatgaag 120  
agcaccaagg gcgcctgac cttcagcccc tacctgctga gccacgtgat gggctacggc 180  
ttctaccact tcggcaccta cccagcggc tacgagaacc cttcctgca cgccatcaac 240  
aacggcggct acaccaacac ccgcatcgag aagtacgagg acggcggcgt gctgcacgtg 300  
agcttcagct accgctacga ggccggccgc gtgatcggcg acttcaaggt ggtgggcacc 360  
ggcttccccg aggacagcgt gatcttcacc gacaagatca tccgcagcaa cgccaccgtg 420  
gagcacctgc acccatggg cgataacgtg ctggtgggca gcttcgcccg caccttcagc 480  
ctgcgcgacg gcggctacta cagcttcgtg gtggacagcc acatgcactt caagagcgcc 540  
atccacccca gcatcctgca gaacgggggc ccatgttcg cttccgcccg cgtggaggag 600  
ctgcacagca acaccgagct gggcatcgtg gagtaccagc acgccttcaa gaccccgatc 660  
gcattcgccc gcatgctcag cgaggagatg attgctgagt tcaaagctgc ctttgacatg 720  
tttgatgcgg acggtggtgg ggacatcagc accaaggagt tgggcacggt gatgaggatg 780  
ctgggccaga accccaccaa agaggagctg gatgccatca tcgaggaggt ggacgaggat 840  
ggcagcggca ccatcgactt cgaggagttc ctggtgatga tgggtgcgcca gatgaaagag 900

## Troponinindikatoren PCT.ST25

gacgccaagg gcaagtctga ggaggagctg gccaactgct tccgcatctt cgacaagaac 960  
 gctgatgggt tcatcgacat cgaggagctg ggtgagattc tcagggccac tggggagcac 1020  
 gtcacgagg aggacataga agacctcatg aaggattcag acaagaacaa tgacggccgc 1080  
 attgacttcg atgagttcct gaagatgatg gaggggtgagc aggagctcat gtccagcggc 1140  
 gccctgctgt tccacggcaa gatccccctac gtggtggaga tggagggcaa tgtggatggc 1200  
 cacaccttca gcatccgcgg caagggtac ggcgatgcca gcgtgggcaa ggtggatgcc 1260  
 cagttcatct gcaccaccgg cgatgtgccc gtgccctgga gcaccctggt gaccaccctg 1320  
 acctacggcg cccagtgcct cgccaagtac ggccccgagc tgaaggattt ctacaagagc 1380  
 tgcacgccc atggctacgt gcaggagcgc accatcacct tcgagggcga tggcaatttc 1440  
 aagacccgcg ccgaggtgac cttcgagaat ggcagcgtgt acaatcgcgt gaagctgaat 1500  
 ggccagggct tcaagaagga tggccacgtg ctgggcaaga atctggagtt caatttcacc 1560  
 cccactgcc tgtacatctg gggcgatcag gccaatcacg gcctgaagag cgccttcaag 1620  
 atctgccacg agatcaccgg cagcaagggc gatttcacg tggccgatca caccagatg 1680  
 aataccccca tcggcggcgg ccccgatcac gtgcccagat accaccacat gagctaccac 1740  
 gtgaagctga gcaaggatgt gaccgatcac cgcgataata tgagcctgaa ggagaccgtg 1800  
 cgcgccgtgg attgccgcaa gacctacctg tga 1833

&lt;210&gt; 42

&lt;211&gt; 610

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; FRET-pair Cop/Phi; Calcium binding moiety: csTnC 15-163

&lt;400&gt; 42

Met Gly Pro Ala Met Lys Ile Glu Cys Arg Ile Thr Gly Thr Leu Asn  
 1 5 10 15

Gly Val Glu Phe Glu Leu Val Gly Gly Gly Glu Gly Thr Pro Glu Gln  
 20 25 30

Gly Arg Met Thr Asn Lys Met Lys Ser Thr Lys Gly Ala Leu Thr Phe  
 35 40 45

Ser Pro Tyr Leu Leu Ser His Val Met Gly Tyr Gly Phe Tyr His Phe  
 50 55 60

Gly Thr Tyr Pro Ser Gly Tyr Glu Asn Pro Phe Leu His Ala Ile Asn  
 65 70 75 80

## Troponinindikatoren PCT.ST25

Asn Gly Gly Tyr Thr Asn Thr Arg Ile Glu Lys Tyr Glu Asp Gly Gly  
 85 90 95  
 Val Leu His Val Ser Phe Ser Tyr Arg Tyr Glu Ala Gly Arg Val Ile  
 100 105 110  
 Gly Asp Phe Lys Val Val Gly Thr Gly Phe Pro Glu Asp Ser Val Ile  
 115 120 125  
 Phe Thr Asp Lys Ile Ile Arg Ser Asn Ala Thr Val Glu His Leu His  
 130 135 140  
 Pro Met Gly Asp Asn Val Leu Val Gly Ser Phe Ala Arg Thr Phe Ser  
 145 150 155 160  
 Leu Arg Asp Gly Gly Tyr Tyr Ser Phe Val Val Asp Ser His Met His  
 165 170 175  
 Phe Lys Ser Ala Ile His Pro Ser Ile Leu Gln Asn Gly Gly Pro Met  
 180 185 190  
 Phe Ala Phe Arg Arg Val Glu Glu Leu His Ser Asn Thr Glu Leu Gly  
 195 200 205  
 Ile Val Glu Tyr Gln His Ala Phe Lys Thr Pro Ile Ala Phe Ala Arg  
 210 215 220  
 Met Leu Ser Glu Glu Met Ile Ala Glu Phe Lys Ala Ala Phe Asp Met  
 225 230 235 240  
 Phe Asp Ala Asp Gly Gly Gly Asp Ile Ser Thr Lys Glu Leu Gly Thr  
 245 250 255  
 Val Met Arg Met Leu Gly Gln Asn Pro Thr Lys Glu Glu Leu Asp Ala  
 260 265 270  
 Ile Ile Glu Glu Val Asp Glu Asp Gly Ser Gly Thr Ile Asp Phe Glu  
 275 280 285  
 Glu Phe Leu Val Met Met Val Arg Gln Met Lys Glu Asp Ala Lys Gly  
 290 295 300  
 Lys Ser Glu Glu Glu Leu Ala Asn Cys Phe Arg Ile Phe Asp Lys Asn  
 305 310 315 320  
 Ala Asp Gly Phe Ile Asp Ile Glu Glu Leu Gly Glu Ile Leu Arg Ala  
 325 330 335  
 Thr Gly Glu His Val Ile Glu Glu Asp Ile Glu Asp Leu Met Lys Asp  
 340 345 350



## Troponinindikatoren PCT.ST25

Ser Asp Lys Asn Asn Asp Gly Arg Ile Asp Phe Asp Glu Phe Leu Lys  
 355 360 365

Met Met Glu Gly Val Gln Glu Leu Met Ser Ser Gly Ala Leu Leu Phe  
 370 375 380

His Gly Lys Ile Pro Tyr Val Val Glu Met Glu Gly Asn Val Asp Gly  
 385 390 395 400

His Thr Phe Ser Ile Arg Gly Lys Gly Tyr Gly Asp Ala Ser Val Gly  
 405 410 415

Lys Val Asp Ala Gln Phe Ile Cys Thr Thr Gly Asp Val Pro Val Pro  
 420 425 430

Trp Ser Thr Leu Val Thr Thr Leu Thr Tyr Gly Ala Gln Cys Phe Ala  
 435 440 445

Lys Tyr Gly Pro Glu Leu Lys Asp Phe Tyr Lys Ser Cys Met Pro Asp  
 450 455 460

Gly Tyr Val Gln Glu Arg Thr Ile Thr Phe Glu Gly Asp Gly Asn Phe  
 465 470 475 480

Lys Thr Arg Ala Glu Val Thr Phe Glu Asn Gly Ser Val Tyr Asn Arg  
 485 490 495

Val Lys Leu Asn Gly Gln Gly Phe Lys Lys Asp Gly His Val Leu Gly  
 500 505 510

Lys Asn Leu Glu Phe Asn Phe Thr Pro His Cys Leu Tyr Ile Trp Gly  
 515 520 525

Asp Gln Ala Asn His Gly Leu Lys Ser Ala Phe Lys Ile Cys His Glu  
 530 535 540

Ile Thr Gly Ser Lys Gly Asp Phe Ile Val Ala Asp His Thr Gln Met  
 545 550 555 560

Asn Thr Pro Ile Gly Gly Gly Pro Val His Val Pro Glu Tyr His His  
 565 570 575

Met Ser Tyr His Val Lys Leu Ser Lys Asp Val Thr Asp His Arg Asp  
 580 585 590

Asn Met Ser Leu Lys Glu Thr Val Arg Ala Val Asp Cys Arg Lys Thr  
 595 600 605

Tyr Leu  
 610